

Application No. 10/662,950
Preliminary Amendment
Dated April 14, 2004

VIA FACSIMILE TRANSMISSION - Official
To OIPE - Fax Number 703-746-4060

In The Claims:

Please cancel claims 1-17, without prejudice or disclaimer.

Please add new claims 18 - 37.

The following listing of claims will replace all prior versions of claims in the application.

Listing of Claims

Claims 1-17 (cancelled)

Claim 18 (new): A method for maintaining information in a Radio Frequency transponder, said information being retained during a period when no power is supplied to said transponder, the method comprising the steps of:

- (a) applying power to said transponder from an external field;
- (b) after removal of the power applied to said transponder, utilizing stored energy from the applied power to retain the information during the period when no power is applied to said transponder; and
- (c) utilizing the retained information to restore the transponder to a state represented by the retained information when the transponder is again subjected to an external field even after a substantial time interval with no power from an external field.

Claim 19 (new): The method of claim 18, wherein the information is retained in an auxiliary volatile storage by the stored energy from the applied power for a substantial time interval of at least one second.

Claim 20 (new): The method of claim 19, wherein the energy required to retain information in the auxiliary volatile storage is stored in an auxiliary charge storage which substantially only supplies energy to said auxiliary volatile storage.

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Claim 21 (new): The method of claim 18, wherein power is applied to the transponder at intervals such that the stored energy should remain adequate to retain said information, for the time intervals between successive applications of power, when a multitag identification operation is being carried out including said transponder.

Claim 22 (new): The method of claim 18, wherein the information is stored in an auxiliary volatile storage for a substantial time period after removal of power applied to the transponder, and the stored information is transferred to a different section of the transponder when power is again applied to said transponder, the energy required to retain information in the auxiliary volatile storage being stored in an auxiliary charge storage device which does not supply energy to the different section of the transponder.

Claim 23 (new): The method of claim 18, wherein the energy required to retain information in the auxiliary volatile storage is stored in an auxiliary charge storage which substantially only supplies energy to said auxiliary volatile storage.

Claim 24 (new): The method of claim 18, wherein the information is retained in an auxiliary volatile storage by the stored energy from the applied power for a substantial time interval of at least a plurality of seconds.

Claim 25 (new): The method of claim 24, wherein the information is stored in an auxiliary volatile storage for a substantial time period after removal of power applied to the transponder, and the stored information is transferred to a different section of the transponder when power is again applied to said transponder, the energy required to retain information in the auxiliary volatile storage being stored in an auxiliary charge storage device which does not supply energy to the different section of the transponder.

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Claim 26 (new): An RF tag comprising:

- (a) a tag antenna for receiving RF power and modulated RF information signals sent to said RF tag by a base station;
- (b) a first tag voltage rectification circuit coupled to said tag antenna for receiving said RF power from said tag antenna and for providing power to the electronic components of said RF tag, said electronic components receiving said power only from said first tag voltage rectification circuit;
- (c) a main memory;
- (d) a volatile auxiliary memory for storing state information in the absence of a received RF power signal; and
- (e) an auxiliary power capacitor for storing energy while the antenna is receiving RF power, for energizing said volatile auxiliary memory, where said auxiliary power capacitor retains sufficient energy to power said volatile auxiliary memory so as to retain the stored state information for a substantial period of time of at least one second after said RF power to said RF tag is removed.

Claim 27 (new): The RF tag of claim 26, further comprising a second tag voltage rectification circuit coupled to said tag antenna for receiving said RF power from said tag antenna, said electronic components receiving said power only from said first tag voltage rectification circuit, and said auxiliary capacitor receiving power only from said second tag voltage rectification circuit.

Claim 28 (new): The RF tag of claim 27, wherein said second tag voltage rectification circuit comprises a PFET transistor.

Claim 29 (new): A method of effecting a multi-tag identification operation, comprising the steps of:

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(a) providing RF energy to a plurality of RF tags disposed in a field region thereof to activate at least one of said plurality of RF tags, wherein at least said one RF tag includes a power storage device, and a volatile information retaining device;

(b) supplying energy to said power storage device, whereby said power storage device can power said volatile information retaining device for a substantial time interval when said one RF tag is de-activated; and

(c) utilizing the power storage device to retain state information comprising information that said one RF tag has been identified.

Claim 30 (new): The method of claim 29, wherein the information is retained in the volatile information retaining device by the stored energy of the power storage device for a time interval of at least one second.

Claim 31 (new). The method of claim 29, wherein the energy required to retain information in said volatile information retaining device is stored in the power storage device which substantially only supplies energy to said volatile information retaining device.

Claim 32 (new). The method of claim 29, wherein power is applied to the transponder at intervals such that the stored energy of the power storage device should remain adequate to retain said information, for the time intervals between successive applications of power, when a multitag identification operation is being carried out including said transponder.

Claim 33 (new). The method of claim 29, wherein the state information is stored in said volatile information retaining device for a substantial time period after removal of power applied to the transponder, and the stored state information is transferred to a different section of the transponder when power is again applied to said transponder, the energy required to retain the state information in said volatile information retaining

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device being stored in the power storage device which does not supply energy to the different section of the transponder.

Claim 34 (new). The method of claim 29, wherein the energy required to retain the state information in said volatile information retaining device is stored in the power storage device which substantially only supplies energy to said volatile information retaining device.

Claim 35 (new): The method of claim 29, wherein the information is retained in the volatile information retaining device by the power storage device for a substantial time interval of at least a plurality of seconds.

Claim 36 (new): An RF tag comprising:

- (a) a tag antenna for receiving RF power and modulated RF information signals sent to said RF tag by a base station;
- (b) a tag voltage rectification circuit coupled to said tag antenna for receiving said RF power from said tag antenna and for providing power to the electronic components of said RF tag;
- (c) a main memory;
- (d) a volatile auxiliary memory for storing state information upon interruption of the received RF power signal;
- (e) an auxiliary power capacitor for storing energy while the antenna is receiving RF power, for energizing said volatile auxiliary memory, where said auxiliary power capacitor retains sufficient energy to power said volatile auxiliary memory so as to retain the stored state information for a substantial period of time after said RF power to said RF tag is removed; and
- (f) a circuit for transferring the stored state information from the volatile auxiliary memory to the main memory when RF power is again received by the tag voltage rectification circuit.

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Claim 37 (new). The RF tag of claim 36, wherein the auxiliary power capacitor retains sufficient energy to power said volatile auxiliary memory so as to retain the stored state information for a substantial period of time of at least one second after said RF power to said RF tag is removed.